

22.5mm Chronos 2 Timers

Crouzet Products /Automation Controls /Electronic Timers /22.5mm Chronos 2 Timers

PRODUCT FEATURES

- + Multi-function or mono-function
- + Multi-range (7 ranges, available options)
- + Multi-voltage
- + SPDT relay output: 10 A - 250 V (T_R versions)
- + DPDT relay output: 10 A - 250 V (T_2R versions)
- + Screw or spring terminals
- + LED status indicator
- + 3-wire sensor control option
- + cUL, UL listed, CSA recognized, CE Approved



22.5mm Chronos 2 Timers

Type	Function	Connection	Supply Voltage	Nominal Rating	Part number
TUR1	Multifunction	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865105</u>
TAR1	A,At (Delay-on-Make)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865115</u>
TBR1	B (Single Shot)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865125</u>
TCR1	C (Delay-on-Break)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865135</u>
THR1	H,Ht (Interval)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865145</u>
TLR1	Li,L (Repeat Cycle)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865155</u>
TQR1	Q (Star Delta)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	<u>88865175</u>
TUR4	Multifunction	Screw Terminal	12VAC/DC	10A SPDT	<u>88865100</u>
TUR3	Multifunction	Screw Terminal	12-240VAC/DC	10A SPDT	<u>88865103</u>
TURc3	Multifunction	Spring Terminal	12VAC/DC	10A SPDT	<u>88865503</u>
TXR1	Multifunction	Screw Terminal	12-240VAC/DC	10A SPDT	<u>88865185</u>
TU2R1	Multifunction	Screw Terminal	24VDC, 24-240VAC	1+1 10A DPDT	<u>88865305</u>
TA2R1	A,At (Delay-on-Make)	Screw Terminal	24VDC, 24-240VAC	2 10A DPDT	<u>88865215</u>

Chronos 2 electronic timers - 22.5 mm

Relay output 1 DTDP relay

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- Output 1 relay: 8 A - 250 V (10 A UL)
- Screw or spring terminals
- 1 LED status indicators
- Option of connecting an external power supply to the control input
- 3-wire sensor control option

Technical specifications

Timing

Repetition accuracy (with constant parameters)	± 0.5 % (CEI 1812-1)
Drift	
- Temperature	± 0.05 % / °C
- Voltage	± 0.2 % / V
Display precision according to IEC 1812-1	±10 % / 25 °C
Minimum pulse duration	
- Typically (relay version)	30 ms
- Typically (solid state version)	50 ms
- Typically under load (relay version)	100 ms
Maximum reset time by de-energisation	

- Typically (relay version)	100 ms
- Typically (solid state version)	350 ms
Immunity to breaks in supply voltage: typically	>10 ms

Power supply

Multi-voltage power supply	depending on version, see page 1/17
Frequency	50/60 Hz
Operating range	85 to 110 % Un (85 to 120 % Un for 12V AC/DC)
Load factor	100 %
Maximum power consumption	0.6 W 24V AC/DC 1.5 W 230V AC 32 VA 230V AC

Output elements relay output

1 or 2 changeover relays, AgNi (cadmium-free)	2000 VA / 80 W
Rated power	2000 V A / 80W
Maximum breaking current	10 A AC 10 A DC
Minimum breaking current	10 mA / 5 VDC
Voltage breaking capacity	250V AC/VDC
Electrical life	10 ⁵ operations 8 A 250V resistive
Mechanical life	5 x 10 ⁶ operations
Breakdown voltage acc. to IEC 1812-1	2.5 kV / 1min / 1 mA /50Hz
Impulse voltage acc. to IEC 664-1 IEC 1812-1	5 kV, wave 1.2 / 50 µs

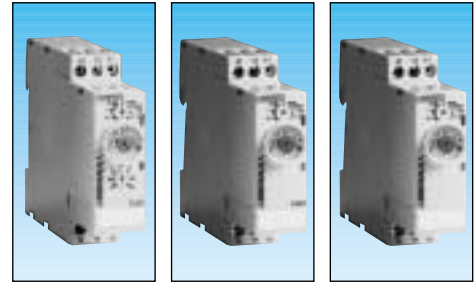
Display

State displayed by 2 LEDs	
- Flashing green when on	
- Relay LED yellow during timing	
Green LED operation indicator	
■■■■■ Pulsing:	
- timer on, no timing in progress (except functions Di-D and Li-L)	
■■■■■ Flashing:	
- timing in progress	
■■■■■ Permanently lit:	
- Relay waiting, no timing in progress	

Input type	
- Volt-free contact	
- 3-wire PNP output control option maximum residual voltage: 0.4 V whatever the timer power supply	0.4 V

Other information

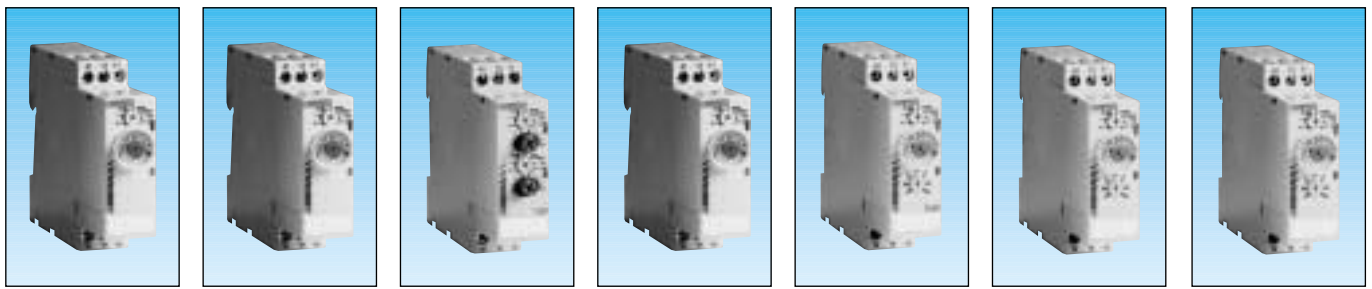
Non stocked items, minimum order quantity 100 units.



Timing	0.1s • 100h	0.1s • 100h	0.1s • 100h
Types			
Screw terminal	TUR1	TAR1	TBR1
Spring terminal	—	—	—
Part numbers and voltage			
24V dc / 24 • 240V ac	88 865 105	88 865 115	88 865 125
12 V ac / dc	—	—	—
12 • 240 V ac / dc	—	—	—
Functions			
	Multi-function A-At - B - C - H-Ht	Bifunction A - At	Mono-function B
	Di-D - Ac - Bw		
Nominal current	10A	10A	10A
Timing ranges (7 ranges) 0.1s - 1s - 10 s , 6s - 60s , 1 min - 10 min , 6min - 60min , 1 h - 10 h - 100 h			
TQR1: Selectable switching time 20 / 40 / 60 / 80 / 100 / 120 / 140 ms			

General specifications

Conforming to standards IEC 1812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC (89/336/EEC + IEC 669-2-3 (17.5 mm)	
Approvals UL - CSA - cUL listed	
Temperatures limits	
- use	-20 °C + 60 °C
- stored	-30 °C + 60 °C
Installation category (acc. to IEC 664-1)	Voltage surge category
Creepage distance and clearance acc. to IEC 664-1	4 kV / 3
Degree of protection acc. to IEC 529	
- terminal block	IP 20
- casing	IP 40
- front face (except Tk2R1)	IP 50
Vibration resistance acc. to IEC 68-2-6	f = 10 • 55 Hz A = 0.35 mm
Relative humidity acc. to IEC 68-2-3 without condensation	
	93 %
Electromagnetic compatibility	
- Immunity to electrostatic discharges acc. to IEC 1000-42	Level III (Air 8 K / Contact 6 KV)
- Immunity to electrostatic fields acc. to ENV 50140/204 (IEC 1000-4-3)	Level III 10V/m: 80 MHz to 1 GHz)
- Immunity to rapid transient bursts acc. to IEC 1000-4-4	Level III (direct 2kV/ Capacitive coupling clamp 1 KV)
- Immunity to shock waves on power supply acc. to IEC 1000-4-5	Level III (common mode 2 KV / residual current mode 1KV)
- Immunity to radiofrequency in common mode acc. to ENV	Level III (10V rms: 0.15 MHz to 80 MHz)
- Immunity to voltage dips and breaks acc. to IEC 1000-4-11	30 % / 10 ms 60 % / 100 ms > 95 % / 5 s
- Mains-borne and radiated emissions acc. to EN 55022 (EN 55011 Group 1)	
	Class B
Fixing: Symmetrical DIN rail (EN 50022)	
	35 mm
Connection capacity	
- without ferrule	2 x 2.5 mm ²
- with ferrule	2 x 1.5 mm ²
Spring terminals, 2 terminals per connection point	
- flexible wire	1.5 mm ²
- rigid wire	2.5 mm ²
Casing material	
	Self-extinguishing
Weight: 22.5 mm casing	
	90 g



0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h

TCR1	THR1	TLR1	TQR1	TUR4	TUR3	TURc3	TXR1
—	—	—	—	—	—	—	—
88 865 135	88 865 145	88 865 155	88 865 175	88 865 100	88 865 103	88 865 503	88 865 185
—	—	—	—	—	—	—	—
Mono-function C	Bifunction H - Ht	Bifunction Li - L	Mono-function Q	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function Ad - Ah - N - O - P - Pt - TL - Tt - W
10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A

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2

4

Function diagrams

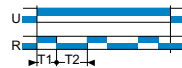
Function A
Delay on energisation
1 relay



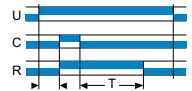
Function H
Timing on energisation
1 relay



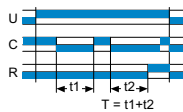
Function Li
Asymmetrical recycler 1 relay
Pulse start



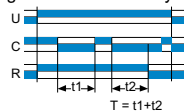
Function C
Timing after impulse
1 timer



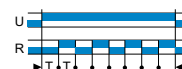
Function At
Timing on energisation with memory
1 relay



Function Ht
Delay on energisation with memory
1 relay



Function D
Flip-flop 1 relay
Pause start



Function Bw
Pulse output (adjustable)
1 relay



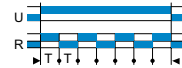
Function B
Timing on impulse one shot
1 relay



Function L
Asymmetrical recycler 1 relay
Pause start



Function Di
Flip-flop 1 relay
Pulse start



Function Ac
Timing after closing and opening
of control contact
1 relay



Function Q
Star-delta

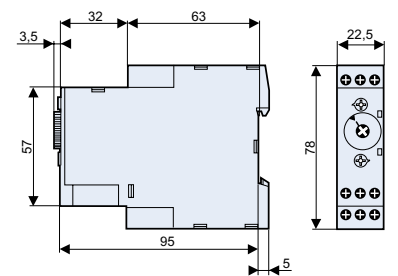
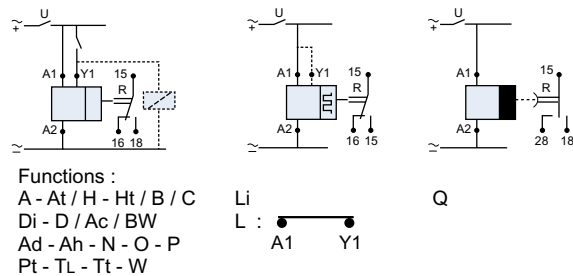


MXR1 functions see page 4/i, 4/ii

Connections

Y1=C (function diagrams)

Dimensions



To order, specify:

Standard products

1 Type

2 Part number

Example: Chronos 2 Timers TAR1 88 865 115

Chronos 2 electronic timers - 22.5 mm

Relay output 2 DPDT relays

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- Relays output 2: 8 A - 250 V (10 A UL) including 1 instantaneous
- Screw terminals
- 1 LED status indicators
- Option of connecting an external power supply to the control input
- 3-wire sensor control option

Technical specifications

Timing

Repetition accuracy (with constant parameters) ± 0.5 % (CEI 1812-1)

Drift

- Temperature ± 0.05 % / °C
- Voltage ± 0.2 % / V

Display precision according to IEC 1812-1 ±10 % / 25 °C

Minimum pulse duration

- Typically (relay version) 30 ms
- Typically (solid state version) 50 ms
- Typically under load (relay version) 100 ms

Maximum reset time by de-energisation

- Typically (relay version) 100 ms
- Typically (solid state version) 350 ms

Immunity to breaks in supply voltage: typically >10 ms

Power supply

Multi-voltage power supply depending on version, see page 1/13

Frequency 50/60 Hz

Operating range

85 to 110 % Un
(85 to 120 % Un for 12V AC/DC)

Load factor 100 %

Maximum power consumption

0.6 W 24V AC/DC
1.5 W 230V AC
32 VA 230V AC

Output elements relay output

1 or 2 changeover relays, AgNi (cadmium-free) 2000 VA / 80 W

Rated power 2000 V A / 80W

Maximum breaking current 10 A AC 10 A DC

Minimum breaking current 10 mA / 5 VDC

Voltage breaking capacity 250V AC/VDC

Electrical life 10⁵ operations

8 A 250V resistive

Mechanical life 5 x 10⁶ operations

Breakdown voltage acc. to IEC 1812-1

2.5 kV / 1min / 1 mA / 50Hz

Impulse voltage acc. to IEC 664-1 IEC 1812-1 5 kV, wave 1.2 / 50 µs

Display

State displayed by 2 LEDs

- Flashing green when on
- Relay LED yellow during timing
Green LED operation indicator

■■■■■ Pulsing:

- timer on, no timing in progress (except functions Di-D and Li-L)

■■■■■ Flashing:

- timing in progress

■■■■■ Permanently lit:

- Relay waiting, no timing in progress

Input type

- Volt-free contact

- 3-wire PNP output control option maximum residual voltage: 0.4 V whatever the timer power supply

Other information

Non stocked items, minimum order quantity 100 units.

Timing

Types

Part numbers and voltage

24V $\overline{\text{---}}$ / 24 • 240V \sim

12V \sim / $\overline{\text{---}}$

Functions

Nominal current

Timing ranges (7 ranges)

0.1s - 1s - 10 s - 6s - 60s , 1 min - 10 min , 6min - 60min , 1 h - 10 h - 100 h

TK2R1 (4 ranges)

0.06 s - 0.6 s - 2.5 s - 20 s - 160 s

General specifications

Conforming to standards

IEC 1812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC (89/336/EEC + IEC 669-2-3 (17.5 mm)

Approvals

UL - CSA - cUL pending

Temperatures limits

- use

-20 °C + 60 °C

- stored

-30 °C + 60 °C

Installation category (acc. to IEC 664-1)

Voltage surge category

Creepage distance and clearance acc. to IEC 664-1

4 kV / 3

Degree of protection acc. to IEC 529

- terminal block

IP 20

- casing

IP 40

- front face (except Tk2R1)

IP 50

Vibration resistance acc. to IEC 68-2-6

f = 10 • 55 Hz
A = 0.35 mm

Relative humidity acc. to IEC 68-2-3 without condensation

93 %

Electromagnetic compatibility

- Immunity to electrostatic discharges acc. to IEC 1000-42

Level III

(Air 8 K / Contact 6 KV)

- Immunity to electrostatic fields acc. to ENV 50140/204 (IEC 1000-4-3)

Level III 10V/m:
80 MHz to 1 GHz)

- Immunity to rapid transient bursts acc. to IEC 1000-4-4

Level III (direct 2kV/
Capacitive coupling clamp 1 KV)

- Immunity to shock waves on power supply acc. to IEC 1000-4-5

Level III (common mode 2 KV / residual current mode 1KV)

- Immunity to radiofrequency in common mode acc. to ENV

Level III (10V rms:
0.15 MHz to 80 MHz)

- Immunity to voltage dips and breaks acc. to IEC 1000-4-11

30 % / 10 ms
60 % / 100 ms >
95 % / 5 s

- Mains-borne and radiated emissions acc. to EN 55022 (EN 55011 Group 1)

Class B

Fixing: Symmetrical DIN rail (EN 50022)

35 mm

Connection capacity

- without ferrule

2 x 2.5 mm²

- with ferrule

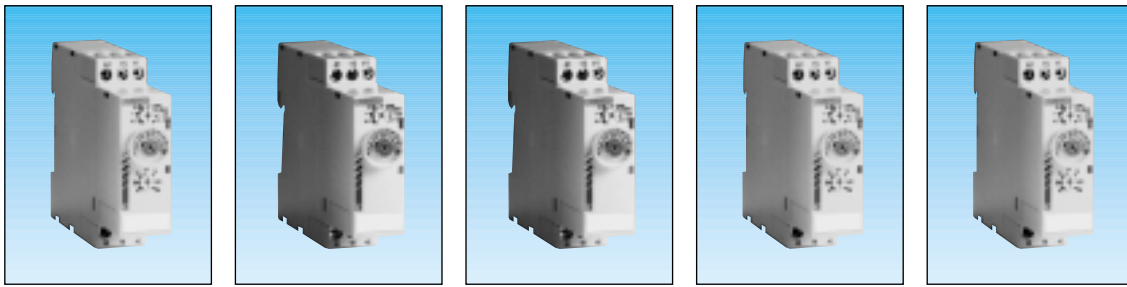
2 x 1.5 mm²

Casing material

Self-extinguishing

Weight: 22.5 mm casing

90 g



0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h 0.1s • 100h

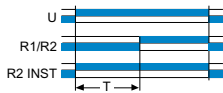
TU2R1	TA2R1	TK2R1	TU2R4	TX2R1
88 865 305	88 865 215	88 865 265	88 865 300	88 865 385
Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Bifunction A - At	Mono-function K	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function Ad - Ah - N - O - P - Pt - TL - Tt - W
8 A	8 A	8 A	8 A	8 A
2 timers including 1 instantaneous	2 timers	2 timers	2 timers including 1 instantaneous	2 timers including 1 instantaneous

1
2

Function diagrams

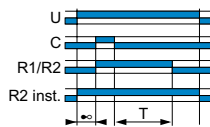
Function A

Delay on energisation
2 timers or
2 relays, including 1 instantaneous



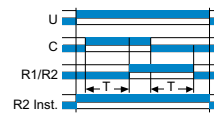
Function C

Timing after impulse
2 timers or 2 relays,
including 1 instantaneous



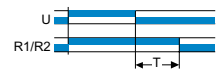
Function Ac

Timing after closing and opening
of control contact
2 timers or 2 relays,
including 1 instantaneous



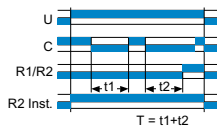
Function K

Delay on de-energisation
True delay OFF
2 relays



Function At

Timing on energisation with memory
2 timers or
2 relays, including 1 instantaneous



Function H

Timing on energisation
2 timers or 2 relays,
including 1 instantaneous



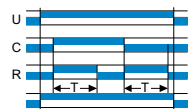
Function D

Flip-flop
Pause start
2 timers or 2 relays,
including 1 instantaneous



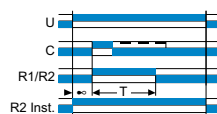
Function Bw

Pulse output (adjustable)
2 timers or 2 relays,
including 1 instantaneous



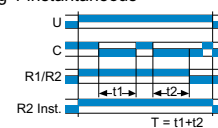
Function B

Timing on impulse one shot
2 timers or 2 relays,
including 1 instantaneous



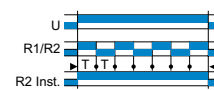
Function Ht

Delay on energisation with memory
1 relay
2 timers or 2 relays,
including 1 instantaneous



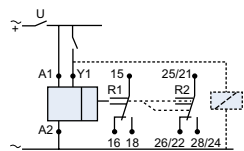
Function Di

Flip-flop
Pulse start
2 timers or 2 relays,
including 1 instantaneous

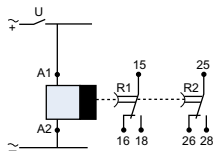


MXR1 functions see page 1/10, 1/11

Connections

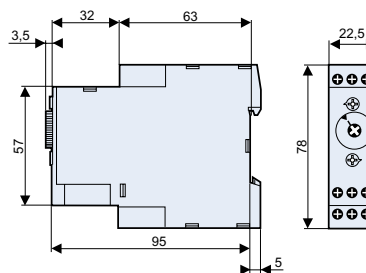


Functions :
A - At / H - Ht / B / C
Di - D / Ac / BW
Ad - Ah - N - O - P
Pt - TL - Tt - W



K

Dimensions



To order, specify:

Standard products

1 Type

2 Part number

Example: Chronos 2 Timers TA2R1 88 865 215